Formal Evaluation and Subject Matter Expert Summary Report

CSCI275

Submitted to Maine is IT in fulfillment of the TAACCCT grant requirements
By
Emporia State University

EMPORIA STATE UNIVERSITY
INFORMATION TECHNOLOGY

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Developed by Anna J. Catterson, Ph.D., Emporia State University.

EMPORIA STATE UNIVERSITY
INFORMATION TECHNOLOGY

Course Review for: Maine is IT
Course: SMCC_CSCI275_Programming in C++
Reviewed by: Mark Summey
Date: 3/2/17

Part 1: Course Review

A. Course Review & Introduction (16 points total)		
1.1 Instructions made clear how to get started and where to find various course components.	3	**0**
1.2 Learners are introduced to the purpose and structure of the course.	3	**3**
1.3 Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication are clearly stated.	2	**0**
1.4 Course and or institutional policies with which the learner is expected to comply are clearly stated, or a link to current policies is provided.	2	**2**
1.5 Minimum technology requirements are clearly stated and instructions for use provided.	2	**2**
1.6 Prerequisite knowledge in the discipline and/or any required competencies are clearly stated.	1	**1**
1.7 Minimum technical skills expected of the learner are clearly stated.	1	**1**
1.8 The self-introduction by the instructor is appropriate and is available online.	1	**0**
1.9 Learners are asked to introduce themselves to the class.	1	**0**
Total	**9**	

Comments:

1.1: No link to the LMS or instructions are given to help students access the course or its contents. Best practices for course design include an online component, even for face-to-face classes. Students should be able to access course materials and grades at their convenience. Consider adding a direct course link.

1.2: The purpose of the course is clearly and succinctly stated. The weekly breakdown of both in-class and on-your-own tasks clearly conveys the course structure.

1.3: Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication should be covered. *Examples include:*

- Be sensitive to the fact that there will be cultural and linguistic backgrounds, as well as different political and religious beliefs, plus other differences in general.
- Use good taste when composing your responses in Discussion Forums. Swearing and profanity is also part of being sensitive to your classmates and should be avoided. Also consider that slang can be misunderstood or misinterpreted.
- Don't use all capital letters when composing your responses as this is considered "shouting" on the Internet and is regarded as impolite or aggressive. It can also be stressful on the eye when trying to read your message.
- Be respectful of your others' views and opinions. Avoid "flaming" (publicly attacking or insulting) them as this can cause hurt feelings and decrease the chances of getting all different types of points of view.
- Be careful when using acronyms. If you use an acronym it is best to spell out its meaning first, then put the acronym in parentheses afterward, for example: Frequently Asked Questions (FAQs). After that you can use the acronym freely throughout your message.

- Use good grammar and spelling, and avoid using text messaging shortcuts.

Again, best practices for course design include an online component for F2F classes. Consider adding discussion threads for student interaction.

1.4: Course and institutional policies that students must follow are included. These include policies on absences, academic dishonesty, and grading. Consider adding a link to the policies on the institutional website.

1.5: Minimum equipment requirements are not stated. Since this is a F2F class, it this rater assumes the technology in the classroom is adequate. Consider adding requirements to the syllabus to enhance student understanding of requirements, especially on homework assignments.

1.6: Prerequisites are listed.

1.7: Minimal skills for students entering the course are not listed. However, skills are implied in the listed prerequisite courses. Consider listing the specific requisite skills.

1.8: No introduction for the instructor or link to an online introduction is given.

1.9: Nothing in the syllabus indicates explicitly that students are asked to introduce themselves.

** All courses should have an introduction for students. This can be informal or formal assessment, but an introduction should be included. Not only should students introduce themselves, the instructor should also introduce him/herself. This is a best practice for course design. Building communication and relationships from the first day of class is a way to strengthen retention efforts.

B. Learning Objectives & Competencies (15 points total)		
2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable	3	**3**
2.2 The module/unit learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies.	3	**3**
2.3 All learning objectives and competencies are stated clearly and written from the learner's perspective.	3	**3**
2.4 The relationship between learning objectives or competencies and course activities is clearly stated.	3	**3**
2.5 The learning objectives or competencies are suited to the level of the course.	3	**3**
Total	**15**	

Comments:

2.1: The course learning objectives are measurable.

2.2: Weekly topics that are listed align with the course-level objectives. Learning outcomes are explained.

2.3 : Course-level learning objectives and competencies are clearly stated from a student perspective.

2.4: Activities listed align with the course-level objectives.

2.5: Objectives are designed to align with outcomes.

C. Assessment & Measurement (13 points total)		
3.1 The assessments measure the stated learning objectives or competencies.	3	**3**
3.2 The course grading policy is stated clearly.	3	**3**
3.3 Specific and descriptive criteria are provided for the evaluation of learners' work and are tied to the course grading policy.	3	**3**
3.4 The assessment instruments selected are sequenced, varied, and suited to the learner work being assessed.	2	**2**
3.5 The course provides learners with multiple opportunities to track their learning progress.	2	**2**
Total	**13**	

Comments:

3.1: The assessments are listed by name and align with course objectives

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3.2: Course grading policy is clear and succinct.

3.3: The assessments are listed in the syllabus and the grading weights are explained.

3.4: The assessment instruments are varied, including assignments and examinations.

3.5: Each unit has multiple assessments for tracking progress.

D. Instructional Materials (13 points total)		
4.1 The instructional materials contribute to the achievement of the stated course and module/unit learning objectives or competencies.	3	**3**
4.2 Both the purpose of instructional materials and how the materials are to be used for learning activities are clearly explained.	3	**3**
4.3 All instructional materials used in the course are appropriately cited.	2	**2**
4.4 The instructional materials are current.	2	**2**
4.5 A variety of instructional materials is used in the course.	2	**2**
4.6 The distinction between required and optional materials is clearly explained.	1	**0**
Total	**12**	

Comments:

4.1: The contents align with the weekly topics listed in the syllabus.

4.2: Materials and purposes for learning are explained.

4.3: The textbook/online resource is cited in the syllabus.

4.4: The textbook is current (2014).

4.5: A variety of materials is listed for the course.

4.6: No mention is made of optional, or extra credit, assignments or activities.

E. Course Activities and Learner Interaction (11 points total)		
5.1 The learning activities promote the achievement of the stated learning objectives or competencies.	3	**3**
5.2 Learning activities provide opportunities for interaction that support active learning.	3	**1**
5.3 The instructor's plan for classroom response time and feedback on assignments is clearly stated.	3	**0**
5.4 The requirements for learner interaction are clearly stated.	2	**0**
Total	**4**	

Comments:

5.1: Activities apply a hands-on approach to achieve the objectives.

5.2: It is not evident that learners are interacting with other students.

5.3: No plan is provided for classroom response time or assignment feedback. A general statement on the course syllabus of a reasonable time frame the instructor will give feedback and answer emails is suggested. What is most common is that instructors will state "Please allow 24-hours for a reply on questions sent via email". Or, "All grading is posted on Monday of the following week by noon." A general, time frame should be outlined for all assignments. This is good practice and it will help faculty avoid the never-ending question "What's my grade"?

5.4: No requirements are listed for learner interaction. Best practice for course design encourages active learning. This could be project based learning or group collaboration projects.

F. Course Technology (10 points total)

6.1 The tools used in the course support the learning objectives and competencies.	3	**3**
6.2 Course tools promote learner engagement and active learning.	3	**2**
6.3 Technologies required in the course are readily obtainable.	2	**2**
6.4 The course technologies are current.	1	**1**
6.5 Links are provided to privacy policies for all external tools required in the course.	1	**1**
Total	**9**	

Comments:

6.1: The tools/equipment used support the learning objectives.

6.2: Not specifically addressed. The tools can be used to support active learning. Consider addressing group work.

6.3: The technology required for this course is assumed to be supplied.

6.4: The technology is current, up-to-date.

6.5: A link is provided.

G. Learner Support (9 points total)		
7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	3	**0**
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	3	**3**
7.3 Course instructions articulate or link to an explanation of how the institution's **academic** support services and resources can help learners succeed in the course and how learners can obtain them.	2	**0**
7.4 Course instructions articulate or link to an explanation of how the institution's **student** support services and resources can help learners succeed in the course and how learners can obtain them.	1	**0**
Total	**3**	

Comments:

7.1: No technical support information is provided in the syllabus. It is recommended that multiple channels of tech support communication be listed in the syllabus to ensure that no student is put behind due to technical difficulties.

7.2: A general ADA compliance statement is provided, along with a statement directing any student with special needs to contact the correct SMCC office, with the contact information provided. Consider adding a link to the SMCC ADA Policy.

7.3: No academic resources are listed. If tutoring, advising, or other student services are available to support academic success, these should be listed along with links or contact information.

7.4: Other than contact information to report and address discrimination, no student support services or resources are listed. If there are services to support student life resources, such as counseling or student wellness, these should be listed along with links or contact information.

H. Accessibility and Usability (12 points total)

8.1 Course navigation facilitates ease of use.	3	**0**
8.2 Information is provided about the accessibility of all technologies required in the course.	3	**0**
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	2	**0**
8.4 The course design facilitates readability.	2	**0**
8.5 Course multimedia facilitate ease of use.	2	**0**
Total	**0**	

Comments:

8.1: Unable to review this item. Course navigation should be designed to minimize the number of clicks necessary to access information.

8.2: Information regarding the accessibility of technology used is not included. This would include instructions on how to obtain and install any programs used.

8.3: Unable to review this item. In addition to varying the modality of content through text, audio, and video instruction, the Americans with Disabilities Act requires institutions to make accommodations for student who identify as having a disability. Work closely with your institution's office for disability services to identify resources to assist in making your course ADA compliant. For videos, a transcript or videos that are captioned are required as an effective means of communication.

8.4: Unable to review this item. Pay special attention to fonts, text color, and background color. Most learning management systems have a default appearance that is ADA compliant. Also, be aware that screen reader software will not recognize bold or italicized fonts. Check with your office of disability services before changing the appearance of your course.

8.5: Unable to review this item. When possible, embedding multimedia within the course LMS ensures ease of access and limits student issues that may arise when leaving the LMS to access outside resources.

** This is a F2F class. Having a supplemental course shell that contains textbook information, institutional policies (links to), contact information for instructor, and assignments (for grades) is strongly recommended and a best practice of this course review process

Part II: Employment Data

Stakeholder Involvement and Employment Opportunities
Items Reviewed include: • Internships, Job Shadowing Opportunities that exist with the outcomes and objectives with this course. • Employment opportunities for these skills. • Outcomes/Objectives are current and relate to job market.
• See Subject Matter Expert review for specific feedback.

Part III: Creative Commons

Items Reviewed include: • All course materials presented in Creative Commons? • Creative Common license (including graphic) is represented on course materials.
Findings include: The syllabus indicates that all course materials other than the syllabus are subject to a copyright held by Microsoft, and thus, may not be shared in Creative Commons. The syllabus includes Creative Commons license information and the corresponding CC graphic.

Part IV: Subject Matter Expert (SME) Findings & Review

Course: SMCC_CSCI275
Course Name: Programming in C++
Reviewed by: Mark Summey
Date: March 2, 2017

Background
Funded by a $13 million grant from the U.S. Department of Labor, ***Maine is IT!*** is building new educational and career pathways in information technology at all seven of Maine's community colleges. The programs funded by the grant are designed to support Maine workers eligible for the Trade Adjustment Assistance (TAA) program, un/underemployed adults, and workforce needs in Maine's growing IT sector. They have been built to serve individuals with a range of experience, from those interested in gaining basic IT skills to IT professionals looking to advance their careers through new industry certifications.

Overall Remarks and Reviewer Summary
In reviewing CSCI275, several processes and data collections tools were noted and identified. This reviewer took in account the Dynamic Skills Audit conducted in 2014-2015. Both qualitative and quantitative data was identified in the report that provides the key elements:

1. Career opportunities do exist within 50 miles of SMCC for graduates from an AAS in Information Technology or those completing a certificate program. It was also found by this reviewer that the skills mastered in CSCI275 relate to specific job openings.
2. Current job openings list specific duties that relate the C== Programming course, CSCI275.

- There are several current job openings available for C++ programmers (as of 3/2/17) within a 50-mile radius of SMCC. A Software engineer is currently being sought with a leading software development company. Job description calls for "Demonstrated skills in C, C+, C++ and assembly language and experience with scripting languages".

The Dynamic Skills Audit outlined the following process, which this reviewer took into consideration when compiling this the formal SME report:

1. Local industry needs were assessed through the program Advisory Board. Minutes from those Advisory Board meetings were reviewed and suggestions from the partnerships were adopted into this summary.
2. Burning Glass data was reviewed to identify themes and trends in the current job market. The Burning Glass report helped identify skills demanded by employers to curriculum outcomes and learning objectives.

A formal SME was conducted with the above reports and compiled in the next section of this report.

A. Program and Course Overview and Objectives

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

The CSCI275 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the CSCI275 course has listed measurable outcomes which can be stacked and latticed with other coursework. The industry sector for CSCI275 has been categorized as: *541512 Computer programming services*. (See: https://www.census.gov/svsd/www/services/sas/sas_summary/54summary.htm#sectordescription) The reviewer finds that this classification is correct.

Those completing this course would enter the Bureau of Labor Statistics occupation classification of *SOC:15-1131 Computer Programmers.* (See: http://www.bls.gov/soc/2010/soc150000.htm#15-1100)

The NCES CIP (Classification of Instructional Programs) is referenced as: *11: Computer and Information Sciences and Support Services*. (See: http://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cip=11)
This is also an accurate classification.

This course was designed for 1st-year community college students or equivalent. There are prerequisites listed.

Listed course objectives include:

- Create variables to hold values during program execution.
- Demonstrate to ability to create functions to perform specialized tasks needed to solve problems.
- Understand the use of C++ specific function syntax such as call by reference and call by value.
- Describe number systems and representation of data in the computer.
- Demonstrate the ability to correctly use loops and decision structures.
- Select appropriate algorithms to solve well formed problems.
- Demonstrate the ability to design object-oriented solutions to computable problems using classes.
- Demonstrate the ability to create a multi-file project using C++
- Demonstrate understanding of memory management in C++ and the use of references vs. pointers.
- Demonstrate the ability to create a full-featured application in C++.
- Troubleshoot programs of their own and those provided by the instructor for debugging purposes.

Students completing this course will be able to use C++ to solve computable problems.

The content of these course objectives aligns with the topics listed in the course syllabus and the required textbook. This alignment also correlates to items found within the Dynamic Skills Audit and Burning Glass baseline skills as listed in the labor market data.

Specific review standards are listed in the table referenced below:

Table: Standard Reviewed Standards for Course Outcomes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
A.1 The learning outcomes are clearly stated and mapped to specific objectives and/or assignments.		X	
A.2 Prerequisites and/or any required competencies are clearly stated.		X	
A.3 Learning objectives for each course describe outcomes that are measurable.		X	
A.4 Learning objectives are appropriately designed for the level of each of the course.		X	
A.5 Instruction, activities, and assignments in courses are scaffold from course to course, and throughout the program.		X	

A.1 – CSCI275 articulates specific learning outcomes for the course, and it can be seen that aspects of the course objectives align with the topics of the activities
A.2 – Previous skills and knowledge are stated.
A.3 - Course objectives are measurable.
A.4 - Learning objectives are appropriate for the course.
A.5 – Activities appear to be scaffold through the course

****Reviewer Note:** While the course outcomes are clearly stated and contain very specific measurable measures, it would also be recommended to include the program mission or goals in the course syllabus for clear assessment measuring. A deeper assessment could possibly be conducted that would match the course learning outcomes to specific program outcomes (or certificate). This would illustrate a direct impact on student learning.

B. Relevancy

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

Course competencies are relevant to students, industry, and employers. Strong evidence was found in the Dynamic Skills Audit Summary Report. Direct ties were found through interviews with stakeholders and in Advisory Board minutes.

The table that follows is a clear matrix of how the course outcomes are relevant to students, industry, and employers:

Table: Matrix of evidence-based skills mapped to students, industry, and employers

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
B.1 Course competencies represent industry's expectation of the overarching knowledge, skills, and abilities that 1st year college students should possess.		X	
B.2 Core course competencies are relevant to **industry and employer**s.		X	
B.3 Instruction, activities, and assignment in individual courses are relevant and engaging to **students**.		X	

B.1 - Course objectives align with industry expectations at the appropriate skill level, as they are derived directly from the current certification exam.
B.2 - Core competencies are relevant to industry and employers, as verified using the Burning Glass labor market data (http://burning-glass.com/research/coding-skills/) and the Dynamic Skills Audit Summary. Student learning objectives align with the competencies expected of new hires in the computer programming field and those listed by the Advisory Board.
B.3 - Activities and instruction defined in the course outline offer real-world application in programming and coding languages that are beneficial to students seeking employment in this field.

C. Resources & Materials

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

The contents of the required textbook were reviewed online at http://ptgmedia.pearsoncmg.com/images/9780321992789/samplepages/9780321992789.pdf. Textbook contents aligned with course objectives

Table: Instructional materials and their direct link to course outcomes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
C.1 The instructional materials contribute to the achievement of the stated course learning objectives.		X	
C.2 The purpose of the instructional materials is clearly explained.		X	
C.3 The instructional materials present a variety of perspectives and approaches on the course		X	
C.4 The instructional materials are appropriately designed for the level of the course.		X	

C.1 – The topics covered with the course materials clearly align with course learning objectives and the certification exam.
C.2 – The purpose of the materials is clear.
C.3 – The materials are varied.
C.4 – Because the materials align with appropriate course outcomes, they are a good fit for the level of course.

D. Assessment & Measurement
Items Reviewed include: • Dynamic Skills Audit Summary Report (Academic Years 2014-2015) • Burning Glass Labor Market Data reports (Compilation) • Advisory Board Minutes

Findings include:

The assignments for each unit align with the course outcomes. The assessments accurately measure the requirements for outcomes.

Table: Measurement of effective learning

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
D.1 The course evaluation/criteria/course grading policy is stated clearly on each syllabus.		X	
D.2 Course-level assessments (those that can be delivered) measure the stated learning objectives and are consistent with course activities and resources.		X	
D.3 Specific and descriptive criteria are provided for the evaluation of students' work and participation and are tied to the course grading policy.		X	
D.4 The assessment instruments (that can be delivered) are sequenced, varied, and appropriate to the content being assessed.		X	

D.1 – The grading policy is clearly stated.
D.2 – The assessments align with the learning objectives/outcomes.
D.3 – Each assignment clearly states the criteria for success.
D.4 – The sequence of the assignments is clear, as they follow the progression of the course to build toward its outcomes. The variety of each assessment is adequate.